What is claimed is:

1. A conveyor system, comprising:

a conveying surface and at least one motor propelling said conveying surface;

a plurality of lower-level controllers, at least one of said plurality of lower-level controllers adapted to control said at least one motor;

an upper-level controller in communication with said plurality of lower-level controllers, said upper-level controller adapted to send communications to said lower-level controllers for controlling said at least one motor; and

a communications bus that carries the communications between said upper-level controller and said lower-level controllers, said upper-level controller adapted to automatically assign each lower-level controller a unique communications address, said unique communications address enabling said upper-level controller to send messages over said communications bus to individual ones of said lower-level controllers.

2. The conveying system of claim 1, wherein said plurality of lower-level controllers being dormant until being individually sequentially activated, wherein an activated lower-level controller communicates with said upper-level controller and receives a communications address from said upper-level controller.

3. The conveying system of claim 2 wherein said upper-level controller activates a first one of said lower-level controllers and wherein said one of said lower-level controllers activates another of said lower-level controllers.

4. The conveyor system of claim 1 further including an enablement connection between said upper-level controller and said plurality of lower-level controllers in a daisy chain fashion, said enablement connection being separate from said communications bus, wherein said enablement connection activates individual ones of said lower-level controllers sequentially to enable said lower-level controllers to communicate with said upper-level controller one at a time to receive unique communications addresses from said upper-level controller.

5. The conveyor system of claim 1 wherein said upper-level controller is adapted to store in a memory the communications addresses for said lower-level controllers.

6. The conveyor system of claim 1 wherein at least one of said lower-level controllers providing input/output functions.

7. The conveyor system of claim 1 wherein the conveyor includes a plurality of upper-level controllers and a second communications bus, each of said upper-level controllers being in communication with each other over said second communications bus.

8. The conveyor system of claim 1 wherein said conveying surface, said at least one motor and said plurality of lower-level controllers define a conveyor bed.

9. The conveyor system of claim 8 including a plurality of conveyor beds, said plurality of conveyor beds in communication with at least one said upper-level controller.

10. The conveyor system of claim 8 wherein said conveyor bed further includes a frame.

11. The conveyor system of claim 10 wherein said upper-level controller is enclosed within a side channel defined by said frame.

12. The conveyor system of claim 1 wherein said upper-level controller is programmed to accumulate a plurality of articles on said conveying surface when a downstream conveying surface contains at least one article.

13. The conveyor system of claim 12 wherein said upper-level controller is programmed to accumulate said plurality of articles on said conveying surface substantially without gaps between said multiple articles.

14. The conveyor system of claim 12 wherein said upper-level controller is programmed to accumulate said plurality of articles on said conveying surface substantially without creating any pressure on a downstream-most one of said plurality of articles.

15. The conveyor system of claim 12 wherein said upper-level controller is programmed to operate in multiple different modes of accumulating of articles on said conveying surface

and wherein said upper-level controller can be controlled to switch between different ones of said multiple modes.

16. The conveyor system of claim 1 further including a plurality of rollers, said plurality of rollers adapted to rotate and move articles carried on said rollers when said motor is activated.

17. The conveyor system of claim 16 wherein said at least one motor is positioned within at least one of said rollers.

18. The conveyor system of claim 1 wherein said upper-level controller sends commands to said at least one of said plurality of lower-level controllers adapted to control the speed of said at least one motor.

19. The conveyor system of claim 1 wherein said plurality of lower-level controllers monitors parameters of devices controlled by said lower-level controllers and wherein said upper-level controller diagnoses malfunctioning of said devices in response to values of said parameters.

20. The conveyor system of claim 7 wherein said plurality of upper-level controllers track articles moving through said conveyor system.

21. The conveyor system of claim 20 wherein said upper-level controllers dynamically route articles moving through said conveyor system.

22. A method of controlling a conveyor system having at least one motor and a plurality of lower-level controllers, at least one of said plurality of lower-level controllers adapted to control said at least one motor, said method comprising:

providing an upper-level controller in communication with said plurality of lower-level controllers and sending communications with said upper-level controller to said lower-level controllers for controlling said at least one motor;

providing a communications bus that carries the communications between said upper-level controller and said lower-level controllers; and

automatically assigning each lower-level controller a unique communications address with said upper-level controller, said unique communications address enabling said upper-level controller to send messages over said communications bus to individual ones of said lower-level controllers.

23. The method of claim 22, including said plurality of lower-level controllers being dormant until being individually sequentially activated and an activated lower-level controller communicating with said upper-level controller and receiving a communications address from said upper-level controller.

24. The method of claim 23 including said upper-level controller activating a first one of said lower-level controllers and said one of said lower-level controllers activating another of said lower-level controllers.

25. The method of claim 22 including providing an enablement connection between said upper-level controller and said plurality of lower-level controllers in a daisy chain fashion, said enablement connection being separate from said communications bus, and further including activating individual ones of said lower-level controllers sequentially with said enablement connection to enable said lower-level controllers to communicate with said upper-level controller one at a time to receive unique communications addresses from said upper-level controller.

26. The method of claim 22 including store in a memory at said upper-level controller the communications addresses for said lower-level controllers.

27. The method of claim 22 wherein at least one of said lower-level controllers providing input/output functions.

28. The method of claim 22 wherein the conveyor includes a plurality of upper-level controllers and a second communications bus, each of said upper-level controllers being in communication with each other over said second communications bus.

29. The method of claim 22 wherein said conveying surface, said at least one motor and said plurality of lower-level controllers define a conveyor bed.

30. The method of claim 29 including a plurality of conveyor beds, said plurality of conveyor beds in communication with at least one said upper-level controller.

31. The method of claim 29 wherein said conveyor bed further includes a frame.

32. The method of claim 31 wherein said upper-level controller is enclosed within a side channel defined by said frame.

33. The method of claim 22 wherein said upper-level controller accumulates a plurality of articles on said conveying surface when a downstream conveying surface contains at least one article.

34. The method of claim 33 wherein said upper-level controller accumulates said plurality of articles on said conveying surface substantially without gaps between said multiple articles.

35. The method of claim 33 wherein said upper-level controller accumulates said plurality of articles on said conveying surface substantially without creating any pressure on a downstream-most one of said plurality of articles.

36. The method of claim 33 wherein said upper-level controller operates in multiple different modes of accumulating of articles on said conveying surface and wherein said upper-level controller can be controlled to switch between different ones of said multiple modes.

37. The method of claim 22 further including a plurality of rollers, said plurality of rollers adapted to rotate and move articles carried on said rollers when said motor is activated.

38. The method of claim 37 wherein said at least one motor is positioned within at least one of said rollers.

39. The method of claim 22 wherein said upper-level controller sends commands to said at least one of said plurality of lower-level controllers adapted to control the speed of said at least one motor.

40. The method of claim 22 wherein said plurality of lower-level controllers monitors parameters of devices controlled by said lower-level controllers and wherein said upper-level controller diagnoses malfunctioning of said devices in response to values of said parameters.

41. The method of claim 28 wherein said plurality of upper-level controllers track articles moving through said conveyor system.

42. The method of claim 41 wherein said upper-level controllers dynamically route articles moving through said conveyor system.

43. A method of installing a conveyor system comprising:

providing a plurality of conveyor beds, each said conveyor bed having at least one motor, at least one motor controller, and at least one sensor, each said at least one sensor adapted to detect the presence of an article on the conveyor bed adjacent the sensor, each of said sensors further adapted to communicate to an associated one of said motor controllers when an article is detected by said sensor, each said motor controller adapted to control the operation of an associated one of said motors;

providing a first upper-level controller mounted to a first one of said conveyor beds, said first upper level-controller in communication with a first set of said motor controllers;

providing a second upper-level controller mounted to a second one of said conveyor beds, said second upper-level controller in communication with a second set of motor controllers;

installing a first modular software program at said first upper-level controller, said first modular software program defining how said first set of motor controllers responds to the associated sensors; and

installing a second modular software program at said second upper-level controller, said second modular software program defining how said second set of motor controllers respond to the associated sensors, said second modular software program being different from said first modular software program.

44. The method of claim 43 wherein said first modular software program performs at least one function selected from the group of functions consisting of accumulating articles, merging articles, diverting articles, continuously transporting articles, and changing the gap size between articles.

45. The method of claim 44 wherein said second modular software program performs at least one function selected from the group of functions consisting of accumulating articles, merging articles, diverting articles, continuously transporting articles, and changing the gap size between articles.

46. The method of claim 44 wherein said first modular software program is adapted to assign communications addresses to each one of said motor controllers in said first set of motor controllers.

47. The method of claim 44 including providing a communications channel operably connected to said first and second upper-level controllers, said communications channel allowing said first and second upper-level controllers to communicate with each other.

48. The method of claim 44 wherein at least one of said plurality of conveyor beds defines a conveying surface that is curved in a horizontal direction.

49. The method of claim 44 wherein each one of said plurality of conveyor beds has an electrical power inlet positioned adjacent a first end of said conveyor bed, an electrical power outlet adjacent a second end of said conveyor bed, and at least one electrical cable housed within said conveyor bed and electrically coupled between said inlet and said outlet.

50. A conveyor system, comprising:

a conveying surface and a plurality of motors propelling said conveying surface;

a plurality of controllers, at least some of said plurality of controllers being motor controllers adapted to control said plurality of motors;

one of said controllers adapted to send communications to said motor controllers for controlling said plurality of motors;

a communications bus that carries the communications between said one of said controllers and said motor controllers, said one of said controllers adapted to automatically

assign each motor controller a unique communications address, said unique communications address enabling said one of said controllers to send messages over said communications bus to individual ones of said motor controllers;

wherein said motor controllers being dormant until being individually sequentially activated; and

wherein an activated motor controller communicates with said one of said controllers and receives a communications address from said one of said controllers.

51. The conveyor system of claim 50 wherein said upper-level controller activates a first one of said lower-level controllers and wherein said one of said lower-level controllers activates another of said lower-level controllers.

52. The conveyor system of claim 50 wherein at least one of said controllers providing input/output functions.

53. The conveyor system of claim 50 wherein said one of said controllers sends commands to said plurality of motor controllers adapted to control the speed of said motors.

54. The conveyor system of claim 50 wherein said motor controllers monitor parameters of said motors and wherein said at least one of said controllers diagnoses malfunctioning of said motors in response to values of said parameters.

55. The conveyor system of claim 50 wherein articles are tracked moving through said conveyor system.

56. The conveyor system of claim 50 wherein articles moving through said conveyor system are dynamically routed.

57. The conveyor system of claim 50 wherein said one of said controllers is programmed to operate in multiple different modes of operation and wherein said one of said controllers can be controlled to switch between different ones of said multiple modes.

58. The conveyor system of claim 50 wherein said one of said controllers is programmed to operate in multiple different modes of accumulating of articles on said conveying surface

and wherein said one of said controllers can be controlled to switch between different ones of said multiple modes.

59. A conveyor system, comprising:

a conveying surface and a plurality of motors propelling said conveying surface;

a plurality of controllers, at least some of said plurality of controllers being motor controllers adapted to control said plurality of motors;

one of said controllers adapted to send communications to said motor controllers for controlling said plurality of motors;

a communications bus that carries the communications between said one of said controllers and said motor controllers, said one of said controllers adapted to automatically assign each motor controller a unique communications address, said unique communications address enabling said one of said controllers to send messages over said communications bus to individual ones of said motor controllers; and

an enablement connection between said one of said controllers and said motor controllers in a daisy chain fashion, said enablement connection being separate from said communications bus, wherein said enablement connection activates individual ones of motor controllers sequentially to enable said motor controllers to communicate with said one of said controllers one at a time to receive unique communications addresses from said one of said controllers.

60. The conveyor system of claim 59 wherein at least one of said controllers providing input/output functions.

61. The conveyor system of claim 59 wherein said one of said controllers sends commands to said plurality of motor controllers adapted to control the speed of said motors.

62. The conveyor system of claim 59 wherein said motor controllers monitor parameters of said motors and wherein said at least one of said controllers diagnoses malfunctioning of said motors in response to values of said parameters.

63. The conveyor system of claim 59 wherein articles are tracked moving through said conveyor system.

64. The conveyor system of claim 59 wherein said one of said controllers is programmed to operate in multiple different modes of operation and wherein said one of said controllers can be controlled to switch between different ones of said multiple modes.

65. The conveyor system of claim 59 wherein said one of said controllers is programmed to operate in multiple different modes of accumulating of articles on said conveying surface and wherein said one of said controllers can be controlled to switch between different ones of said multiple modes.

66. A conveyor system, comprising:

a conveying surface and at least one motor propelling said conveying surface;

a plurality of lower-level controllers, at least one of said plurality of lower-level controllers adapted to control said at least one motor;

an upper-level controller in communication with said plurality of lower-level controllers, said upper-level controller adapted to send communications to said lower-level controllers for controlling said at least one motor;

a communications bus that carries the communications between said upper-level controller and said lower-level controllers, wherein said upper-level controller sends commands to said at least one of said plurality of lower-level controllers over said communications bus adapted to control the speed of said at least one motor; and

wherein said upper-level controller is programmed to operate in multiple different modes of accumulating of articles on said conveying surface and wherein said upper-level controller can be controlled to switch between different ones of said multiple modes.

67. The conveyor system of claim 66 wherein said plurality of lower-level controllers monitors parameters of devices controlled by said lower-level controllers and wherein said upper-level controller diagnoses malfunctioning of said devices in response to values of said parameters.

68. The conveyor system of claim 66 wherein articles are tracked moving through said conveyor system.

69. The conveyor system of claim 66 wherein articles moving through said conveyor system are dynamically routed.